

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

TSE2231– SOFTWARE ENGINEERING FUNDAMENTALS

(All sections / Groups)

28 FEBRUARY 2020

9.00am – 11.00am

(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 4 pages with 5 Questions only.
2. Answer all **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

- a. Define software engineering. (3 marks)
- b. What are the **TWO (2)** important differences between generic software product development and custom software development? What might this mean in practice for users of generic software products? (4 marks)
- c. What are **THREE (3)** important questions a software company must answer when planning a software development? (3 marks)

QUESTION 2

- a. Using the information in **Table 1**, assuming that the project team members will work 5 days in a week and all tasks will start as soon as possible:

Table 1: Project Tasks

Task	Description	Duration	Predecessor/s
A	Planning	5	
B	Requirement Analysis	15	A
C	Systems Design	25	B
D	Programming	15	B
E	Hardware Installation	30	B
F	Integration	10	C, D
G	System Testing	10	E, F
H	Training/Support	5	G
I	Go-Live	5	H

- i. Construct a network diagram (PERT chart) to analyze this project. Show critical path of the project. (4 marks)
- ii. Calculate the planned duration of the project in weeks. (2 marks)
- iii. Identify any non-critical tasks and the float (free slack) on each tasks. (1 mark)
- b. Name **ONE (1)** potential risk associated with the process of gathering requirements. Explain briefly **TWO (2)** practices that tend to be effective in mitigating or eliminating the specific risks you mentioned. (3 marks)

Continued

QUESTION 3

- a. Software Life Cycle Model is well defined, structured sequence of stages in software engineering to develop software.
 - i. Discuss **TWO (2)** difficulties that might be faced if no life cycle model is followed for developing a certain large project. (3 marks)
 - ii. Discuss V-Model, giving particular attention to the application of tools, techniques, and project life cycle phases as progress is made towards a complete system. (4 marks)
- b. You are the manager of a software development department and you've just figured out that your next release is not going to be on time. Name **THREE (3)** things you can do to remedy the situation. (3 marks)

QUESTION 4

- a. A book shop (*ABS*) has book rental service. Before a book can be put on the shelf, it must be catalogued and entered into the book database. Every customer must have a valid *ABS* customer card to rent a book. Customer rents books for 3 days at a time. Every time a customer rents a book, the system must ensure that he or she does not have any overdue books. If so, the overdue books must be returned and an overdue fee must be paid before the customers can rent more books. Likewise, if the customer has returned overdue books but has not paid the overdue fee, the fee must be paid before new books can be rented. Every morning the store manager prints a report that lists overdue books; if a book is 2 or more days overdue, the manager calls the customer to remind him or her to return the book. If a book is returned in damage condition, the manager removes it from the book database and may sometimes charge the customer. The supplier provides book descriptive information to the system.

Draw a context diagram for *ABS* as described above. (4 marks)

- b. What are **TWO (2)** aspects of a software system that are explicitly omitted from a UML class diagram? (3 marks)
- c. Draw a use case diagram for the scenario below, showing relationships between different use cases.
Assume that courses are taught by instructors, while registrars can enroll or remove students from a course. Students take a course, provided they are enrolled in it. (3 marks)

Continued

QUESTION 5

- a. After a major release of a software system, there often follows a period of corrective maintenance. Discuss **TWO (2)** reasons why these occur. (4 marks)

- b. Why is regression testing an important part of any integration testing procedure? (3 marks)

- c. Describe **THREE (3)** factors that should be taken into account by engineers during the process of building a release of a large software system. (3 marks)

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